

ORAU Team Dose Reconstruction Project for NIOSH Development of the Kansas City Plant Technical Basis Document	Document Number: ORAUT-PRES-0041 Effective Date: 11/03/2004 Revision No.: 00 Controlled Copy No.: _____ Page 1 of 24
Subject Expert: William E. Murray Document Owner Approval: <u>Signature on File</u> Date: <u>10/21/2004</u> Judson L. Kenoyer, Task 3 Manager Concurrence: <u>Signature on File</u> Date: <u>11/03/2004</u> Richard E. Toohey, Project Director	Supersedes: <div style="text-align: center;">None</div>

RECORD OF ISSUE/REVISIONS

ISSUE AUTHORIZATION DATE	EFFECTIVE DATE	REV. NO.	DESCRIPTION
11/03/2004	11/03/2004	00	Slides used for presentation on September 15, 2004. Initiated by William E. Murray.

Development of the Kansas City Plant Technical Basis Document

Bill Murray
Oak Ridge Associated
Universities Team

September 15, 2004

Energy Employees
Occupational Illness
Compensation Program Act
(EEOICPA)

EEOICPA – 2 types of claims

- Department of Labor
 - \$150,000 + medical expenses
 - Radiation-induced cancer
 - Beryllium diseases
 - Silicosis
 - Radiation claims go to NIOSH for dose reconstruction
 - (This is what we are here to talk about.)***
- Department of Energy
 - Workers' Compensation
 - Exposures to toxic substances

NIOSH – National Institute for Occupational Safety and Health

Office of Compensation
Analysis and Support

Contractor:

Oak Ridge Associated
Universities Team

Significant Dates

- December 2000: EEOICPA signed into law.
- July 2001: Department of Labor (DoL) began accepting claims.
- September 2002: ORAU Team awarded contract to support radiation dose reconstruction.

Purpose of This Meeting:

- Discuss the Kansas City Plant (KCP) Technical Basis Document (TBD).
- Describe what the TBD is used for.
- Ask for your suggestions and information.
- Document your concerns and issues.
- Answer your questions.

The TBD Supports Dose Reconstruction

The TBD:

- Is used by health physicists to reconstruct radiation doses.
- Provides site-specific technical information.
- Minimizes the interpretation of data.
- Can change as new information comes to light.

Contents of the Kansas City Plant TBD

This TBD will contain information on the following topics:

- Site Description
- External Dose
- Internal Dosimetry
- Occupational Environmental Dose
- Occupational Medical Dose

The Kansas City Plant TBD Team

- The Team was established in May 2004.
- The Team Leader is Jack Fix.
- The TBD is being drafted.
- After NIOSH approves the TBD, it will be available on their website.
- The completed TBD will be available at <http://www.cdc.gov/niosh/ocastbds.html>

KCP Site Description

- Describes the facilities and activities at KCP since the beginning of Atomic Energy Commission (AEC) operations in 1949.
- Documents the radioactive materials and radiation sources present.
- Identifies potential internal and external exposures from occupational, environmental and medical radiation sources.

KCP Site Description (Cont.)

Facilities at KCP include the Main Manufacturing Building and several support buildings.

External Dosimetry

We include information on:

- Methods and practices
- Sources of exposure
- Adjustments to recorded dose
- Minimum detectable levels (MDLs)

External Dosimetry (Cont.)

- Dosimeter technology
 - Beta, gamma and x ray – 1950 to present
 - Neutron – 1961 to present
- Exchange frequency
- Workplace radiation fields
- Exposure geometries

Internal Dosimetry

We include information on:

- Methods and practices.
- Sources of exposure.
- Minimum detectable activity (MDA) for urine analysis.

Occupational Internal Dosimetry (Cont.)

- Workplace air monitoring records are available.
- Urine was tested for depleted uranium from 1959 to 1971.

Occupational Environmental Dose (for workers who were not monitored)

Persons who were not radiation workers (not badged) could be exposed to radiation from:

- Radioactive materials in the air (internal dose).
- Radiation sources in buildings (external dose).

Occupational Environmental External Dose

The external radiation dose results from radiation sources used inside buildings.

This external dose for unmonitored workers is calculated using dose information on monitored workers and then calculating doses to specific organs.

Occupational Environmental Internal Dose

The internal radiation dose is determined by:

- Calculating the amount of radioactive material taken into the body from the concentration in air.
- Calculating the dose to specific organs.

Occupational Medical Dose (X rays)

- Frequency of chest x rays.
- X-ray equipment and techniques used.
- Radiation doses to specific organs.
- Use of this information to reconstruct radiation doses.

Occupational X-ray Dose (Cont.)

- Only chest x rays required by the employer are included.
- The x-ray equipment changed over time.
- Older equipment gave off more x-ray radiation resulting in higher doses.
- The x-ray doses are not included in the worker's DOE dose records.

In Conclusion:

- Developing a usable TBD is an important task.
- The TBDs can change based on your input.

Send Comments on Site Profile Directly to NIOSH

National Institute for Occupational
Safety and Health (NIOSH)

Robert A. Taft Laboratories MS-C34
4676 Columbia Parkway
Cincinnati, OH 45226

Fax: (513) 533-8230

email: siteprofile@cdc.gov

NIOSH

Office of Compensation Analysis and Support Website

<http://www.cdc.gov/niosh/ocas/>